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APPLICATION NO	FILING DATE	FIRST NAME INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09 651,790	08 30 2000	Pary Baluswamy	CF 027 PROV	2095

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EXAMINER

PIZARRO CRESPO, MARCOS D

ART UNIT PAPER NUMBER

2814

DATE MAILED: 03 24 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/651,790

Applicant(s)

BALUSWAMY ET AL.

Examiner

Marcos D. Pizarro-Crespo

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 16-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) 1-21 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 12 February 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) or (f).

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statements (PTO-1449, Paper No. 1)
4) ☐ Interview Summary (PTO-413) (Paper No. 1)
5) ☐ Notice of Informal Patent Application (PTO-152)

Examiner: Marcos D. Pizarro-Crespo

This Office action responds to the amendment in paper no. 23 filed on 2/12/2003.

1. The amendment in paper no. 23, filed on 2/12/2003, in response to the Office action in paper no. 20, mailed on 11/6/2002, has been entered. The present Office action is made with all the suggested amendments being fully considered. Accordingly, pending in this Office action are claims 1-21.

2. The corrected or substitute drawings were received on 2/12/2003. These drawings are accepted.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

shall have no effects for purposes of this subsection if an agreement between the United States and the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 16-19 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Ackmann (US 6271602).

5. Ackmann shows (see, e.g., figs. 19-23) all aspects of the instant invention including a method to form an overlay target including a series of raised lines, the method comprising:

- providing a substrate **300**
- depositing a resist layer **320** over the substrate **300**
- patterning the resist layer **320** to include a resist pattern defining the overlay target including the series of raised lines (see, e.g., fig. 20)
- etching the substrate **10** to form the overlay target including the resist pattern with the series of raised lines (see, e.g., fig. 21)
- depositing a second layer **322** of material having an upper surface substantially free of depressions in that portion **302** of the second layer covering the overlay target in the substrate **300**

6. Regarding claim 17, Ackmann shows (col.10/ll.54) that the substrate comprises silicon.

7. Regarding claim 18, Ackmann deposits the resist layer **320** directly over the semiconductor substrate **300** (see, e.g., fig. 19).

8. Regarding claim 19, Ackmann shows the substrate **300** including a top surface and a bottom surface, and a material layer **306** deposited over the top surface.

9. Regarding claim 21, Ackmann shows (see, e.g., col.12/ll.31, col.13/ll.12-14) that the substrate etching-step may comprise a step of wet etching the substrate **300** to form the overlay target.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 16, 19, and 20, are rejected under 35 U.S.C. 102(b) as being anticipated by Kinoshita (JP 58-90728) in view of Ackmann.

13. Kinoshita shows (see, e.g., fig. 3) most aspects of the instant invention including

- providing a substrate **1**
- depositing a resist layer **26** over the substrate **1**
- patterning the resist layer **26** to include a resist pattern defining the overlay target including a series of raised lines (see, e.g., fig. 3C)
- etching the substrate **1** to form the overlay target including the resist pattern with the series of raised lines (see, e.g., fig. 3E)

Kinoshita, however, fails to show a step of depositing a second layer of material, wherein the second layer has an upper surface that is substantially free of depressions in that portion of the layer that covers the overlay target.

Ackmann (col.3/ll.1-12), on the other hand, teaches that, when manufacturing alignment marks (*i.e.*, overlay targets), it is conventional to deposit a layer covering the mark such that its upper surface is substantially free of depressions.

Consequently, it would have been obvious at the time of the invention to one of ordinary skill in the art to include a step of depositing a second layer over Kinoshita's overlay target such that the upper surface of the layer is substantially free of depressions in that portion that covers the overlay target, as suggested by Ackmann, since such a step is conventionally used during the manufacturing process of overlay targets.

14. Regarding claim 19, Kinoshita shows that a material layer **21** may be deposited over the top surface of the semiconductor substrate **1** (see, e.g., fig. 3B).

15. Regarding claim 20, Kinoshita shows that the resist layer **26** may be deposited over the material layer **21** and that the step of etching the substrate **1** comprises etching the material layer **21** (see, e.g., figs. 3C-3E).

Response to Arguments

Applicant's arguments with respect to claims 16-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

17. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.

19 Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Marcos D. Pizarro-Crespo** at **(703) 308-6558** and between the hours of 9:30 AM to 8:00 PM (Eastern Standard Time) Monday through Thursday or by e-mail via Marcos.Pizarro@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on (703) 308-4918.

20 Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

21. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U S Class / Subclass(es) 257/797 438/401, 462, 704, 706, 709-711, 719, 745, 783, 975	3/17/2003
Other Documentation	
Electronic Database(s) EAST (USPAT, EPO, JPO)	3/17/2003

Marcos D. Pizarro-Crespo
Patent Examiner